

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 22 FEB 2001

WIPO PCT

Applicant's or agent's file reference 72178 Jen/cor	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DK00/00155	International filing date (day/month/year) 29/03/2000	Priority date (day/month/year) 29/03/1999
International Patent Classification (IPC) or national classification and IPC B65D33/16		
Applicant DANISCO A/S et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 05/09/2000	Date of completion of this report 20.02.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Jervelund, N Telephone No. +49 89 2399 2649



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/DK00/00155

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).):*

Description, pages:

3-11 as originally filed

1,2,2a as received on 01/02/2001 with letter of 31/01/2001

Claims, No.:

3 (part),4-10 as originally filed

1,2,3 (part) as received on 01/02/2001 with letter of 31/01/2001

Drawings, sheets:

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/DK00/00155

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-10
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-10
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-10
	No:	Claims	

2. Citations and explanations
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/DK00/00155

Part V:

1. Reference is made to the following documents:

D1: WO 99/10246 A

2. D1 is considered as representing the nearest prior art, and discloses a package according to the preamble of claim 1.

The features of the characterising portion of claim 1, defining that the transverse connection between the top wall and the adjacent side wall comprises a heat-sealed peelable connection, provides an inexpensive, easy to open, gas-tight package.

Such a package having a heat-sealed peelable connection is neither disclosed in the available prior art, nor regarded as being obvious to the skilled person.

Consequently the subject-matter of claim 1 meets the requirements of Articles 33(2) and 33(3) PCT.

3. Dependent claims 2 to 10 concern modifications of the inventive idea embodied in claim 1, and thus they also meet the requirements of Articles 33(2) and 33(3) PCT.

1.

Title: Stand-up bag for flowable or pourable products.

Technical Field

The invention relates to a stand-up bag of a heat-sealable or weldable plastic film for containing in particular flowable or pourable products and comprising:

- 5 - two opposing side walls sealed together along lateral edges thereof by means of side seams;
- an inwardly folded bottom wall extending between the lower portions of the side walls and sealed to the respective side walls along transverse bottom seams and along bottom side seams; and
- 10 - an inwardly folded top wall extending between the upper portions of the side walls and connected to the respective side walls along transverse top connections and sealed to the respective side walls along top seams.

Background Art

- Stand-up bags of this type are known inter alia from US-A-3,935,993 and
- 15 DE-A1-2553854. Due their excellent standing properties and stability the bags have been used for a wide range of products, in particular for liquid, paste-like, powdery and granular products. It is however considered a drawback of the known stand-up bags that they are difficult to open why a pair of scissors or a knife is often needed or - as for instance known from WO 93/16928 and EP-A2-0.380.110 - they are
 - 20 provided with special discharging arrangements for easy removal of the product which makes the bag more expensive.

The above EP-A2 0380110 further discloses a stand-up bag of the type stated in the

preamble to claim 1 of the present invention and wherein the transverse top connections between the upper edge portions of the top wall and the upper edge portions of the respective side walls are non-peelable connections. The bag is provided with a closable discharge nozzle in the upper portion of one of the side walls for discharging the contents of the bag.

Finally WO 99/10246 discloses a bag having an inwardly folded top wall and comprising a reclosable fastening member between the upper edge portion of the top wall and an upper edge portion of the adjacent side wall. In the shown and described embodiment the reclosable fastening member is formed of a plastic zipper. In addition hereto on page 5, lines 13-14 the following examples of reclosable fastening members are mentioned: a plastic zipper with a slider, an adhesive fastener, VELCRO and snaps. However none of the mentioned or shown fasteners are capable of providing a gas-tight connection or closure and thus a gas-tight bag. The provision of such fasteners is furthermore both difficult and expensive.

15 Brief Description of the Invention

The object of the invention is to provide a stand-up bag of the above type which is easy to open toollessly and which is simple and inexpensive to manufacture.

The stand-up bag according to the invention is characterised in that at least one of the transverse connections between the top wall and the side walls is a heat-sealed peelable connection provided between an upper edge portion of the top wall and an upper edge portion of the adjacent side wall. The bag is thereby easily opened by gripping the top wall and the side wall connected by means of the peelable connection and pulling the two walls apart such that the peelable connection is broken.

According to the invention the upper edge portions of the top wall and the side wall

2a

may extend beyond the transverse peelable connection to form gripping members to be gripped when the peelable connection is to be broken. In addition to facilitating the opening of the bag, this embodiment of the invention is advantageous in that the portion of the top wall extending beyond the peelable connection may serve as a form of spout after the bag has been opened.

Furthermore according to the invention the peelable connection may comprise a film strip arranged between the upper edge portions of the top wall and the side walls, said film strip being firmly (non-peelably) heat-sealed to one of the edge portions, preferably to the edge portion of the top wall, the strip having a first surface of a sealing medium corresponding substantially to the sealing medium of the adjacent bag wall, and heat-sealed peelably to the second edge portion, preferably the edge portion of the side wall, the strip having a second surface of a sealing medium heat-sealed peelably to the sealing medium of the adjacent bag wall.

When the inner sealing medium of the bag walls is substantially made from polyethylene (PE), the first outer sealing medium layer of the film strip may be made

Claims

1. Stand-up bag of a heat-sealable or weldable plastic film for containing in particular flowable or pourable products and comprising:
- 5 - two opposing side walls (1, 2) sealed together along lateral edges thereof by means of side seams (5, 6);
- an inwardly folded bottom wall (4) extending between the lower portions of the side walls (1, 2) and sealed to the respective side walls (1,2) along transverse bottom seams (7, 8) and along bottom side seams; and
- 10 - an inwardly folded top wall (3) extending between the upper portions of the side walls (1, 2) and connected to the respective side walls (1,2) along transverse top connections (11, 12) and sealed to the respective side walls (1, 2) along top side seams,
- c h a r a c t e r i s e d in that at least one of the transverse connections between the
- 15 top wall (3) and the side walls is a heat-sealed peelable connection (12, 32, 42, 52) provided between an upper edge portion (16, 36) of the top wall (3) and an upper edge portion (15) of the adjacent side wall (2).
2. Stand-up bag according to claim 1, c h a r a c t e r i s e d in that the upper edge portions (16, 36; 15) of the top wall (3) and of the side walls (2) extends
- 20 beyond the transverse peelable connection (12, 32, 42, 52) to form gripping members.
3. Stand-up bag according to claim 1 or 2, c h a r a c t e r i s e d in that the peelable connection (12) comprises a film strip (17) arranged between the upper edge portions (16,15) of the top wall (3) and the side wall (2), said film strip being firmly

INTERNATIONAL COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE
in its capacity as elected Office

Date of mailing (day/month/year) 01 November 2000 (01.11.00)	Applicant's or agent's file reference 72178Jen/cor
International application No. PCT/DK00/00155	Priority date (day/month/year) 29 March 1999 (29.03.99)
International filing date (day/month/year) 29 March 2000 (29.03.00)	
Applicant SCHULZ, Werner	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
05 September 2000 (05.09.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Nestor Santesso

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

CHAS. HUDE A/S
H.C. Andersens Boulevard 33
DK-1780 Copenhagen V
DANEMARK

Sagstype <i>PH</i>	J.nr. <i>72178</i>	Ing. <i>Jan</i>
- 6 DEC. 2000		
AS 400 <i>Ger</i>	Til hvem <i>Ger</i>	

PCT

WRITTEN OPINION

(PCT Rule 66)

Date of mailing (day/month/year) 04.12.2000	
Applicant's or agent's file reference 72178 Jen/cor	REPLY DUE within 3 month(s) from the above date of mailing
International application No. PCT/DK00/00155	International filing date (day/month/year) 29/03/2000
Priority date (day/month/year) 29/03/1999	
International Patent Classification (IPC) or both national classification and IPC B65D33/16	
Applicant DANISCO A/S et al.	

1. This written opinion is the **first** drawn up by this International Preliminary Examining Authority.
2. This opinion contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain document cited
 - VII ☒ Certain defects in the international application
 - VIII ☐ Certain observations on the international application
3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.
4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: **29/07/2001**.

Name and mailing address of the international preliminary examining authority: <div style="text-align: center;"> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div>	Authorized officer / Examiner Jervelund, N <hr/> Formalities officer (incl. extension of time limits) Berger, K Telephone No. +49 89 2399 2576
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I. Basis of the opinion

1. This opinion has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed".*):

Description, pages:

1-11 as originally filed

Claims, No.:

1-10 as originally filed

Drawings, sheets:

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

WRITTEN OPINION

International application No. PCT/DK00/00155

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims
Inventive step (IS)	Claims 1-10
Industrial applicability (IA)	Claims

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

Part V:

1. Reference is made to the following documents:

D1: WO 99/10246 A

D2: EP 380110 A

A copy of the documents D1 and D2 is attached to this communication.

2. The present application does not satisfy the criterion set forth in Article 33(3) PCT because the subject-matter of Claim 1 does not involve an inventive step (Rule 65(1)(2) PCT).

- 2.1 Document D1, which is considered to represent the most relevant state of the art, discloses (cf. Fig. 2 and 3) a stand-up bag from which the subject-matter of claim 1 differs only in that the bag comprises an inwardly folded bottom and top wall sealed to the respective side walls.

However, such inwardly folded top and bottom walls are described in document D2 (see in particular Fig. 1, and column 4, lines 50-60 and column 5, lines 40-50) as providing the same advantages as in your application. The skilled person would therefore regard it as a normal design option to include such walls in the stand-up bag described in document D1 in order to solve the problem posed.

3. Dependent Claims 2 - 10 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, involve an inventive step, as they are considered as being within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance.

Part VII.

1. To meet the requirements of Rule 6.3(b) PCT the independent claim should be properly cast in the two part form, with those features which in combination are part of the prior art (see document D1) being placed in the preamble.

**WRITTEN OPINION
SEPARATE SHEET**

International application No. PCT/DK00/00155

2. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D2 is not mentioned in the description, nor is this document identified therein.

REPLACED BY
ART 34 AMDT

1

Title: Stand-up bag for flowable or pourable products.

Technical Field

The invention relates to a stand-up bag of a heat-sealable or weldable plastic film for containing in particular flowable or pourable products and comprising:

- 5 - two opposing side walls sealed together along lateral edges thereof by means of side seams;
- an inwardly folded bottom wall extending between the lower portions of the side walls and sealed to the respective side walls along transverse bottom seams and along bottom side seams; and
- 10 - an inwardly folded top wall extending between the upper portions of the side walls and connected to the respective side walls along transverse top connections and sealed to the respective side walls along top seams.

Background Art

- Stand-up bags of this type are known inter alia from US-A-3,935,993 and
- 15 DE-A1-2553854. Due their excellent standing properties and stability the bags have been used for a wide range of products, in particular for liquid, paste-like, powdery and granular products. It is however considered a drawback of the known stand-up bags that they are difficult to open why a pair of scissors or a knife is often needed or - as for instance known from WO 93/16928 and EP-A2-0.380.110 - they are
 - 20 provided with special discharging arrangements for easy removal of the product which makes the bag more expensive.

Brief Description of the Invention

The object of the invention is to provide a stand-up bag of the above type which is easy to open toollessly and which is simple and inexpensive to manufacture.

- 5 The stand-up bag according to the invention is characterised in that at least one of the transverse connections between the top wall and the side walls is a peelable connection provided between an upper edge portion of the top wall and an upper edge portion of the adjacent side wall. The bag is thereby easily opened by gripping the top wall and the side wall connected by means of the peelable connection and
10 pulling the two walls apart such that the peelable connection is broken.

- According to the invention the upper edge portions of the top wall and the side wall may extend beyond the transverse peelable connection to form gripping members to be gripped when the peelable connection is to be broken. In addition to facilitating the opening of the bag, this embodiment of the invention is advantageous in that the
15 portion of the top wall extending beyond the peelable connection may serve as a form of spout after the bag has been opened.

- Furthermore according to the invention the peelable connection may comprise a film strip arranged between the upper edge portions of the top wall and the side walls, said film strip being firmly (non-peelably) heat-sealed to one of the edge portions,
20 preferably to the edge portion of the top wall, the strip having a first surface of a sealing medium corresponding substantially to the sealing medium of the adjacent bag wall, and heat-sealed peelably to the second edge portion, preferably the edge portion of the side wall, the strip having a second surface of a sealing medium heat-sealed peelably to the sealing medium of the adjacent bag wall.

- 25 When the inner sealing medium of the bag walls is substantially made from polyethylene (PE), the first outer sealing medium layer of the film strip may be made

Claims

1. Stand-up bag of a heat-sealable or weldable plastic film for containing in particular flowable or pourable products and comprising:

5 - two opposing side walls (1, 2) sealed together along lateral edges thereof by means of side seams (5, 6);

- an inwardly folded bottom wall (4) extending between the lower portions of the side walls (1, 2) and sealed to the respective side walls (1,2) along transverse bottom seams (7, 8) and along bottom side seams; and

10 - an inwardly folded top wall (3) extending between the upper portions of the side walls (1, 2) and connected to the respective side walls (1,2) along transverse top connections (11, 12) and sealed to the respective side walls (1, 2) along top side seams,

15 c h a r a c t e r i s e d in that at least one of the transverse connections between the top wall (3) and the side walls is a peelable connection (12, 32, 42, 52) provided between an upper edge portion (16, 36) of the top wall (3) and an upper edge portion (15) of the adjacent side wall (2).

2. Stand-up bag according to claim 1, c h a r a c t e r i s e d in that the upper edge portions (16, 36; 15) of the top wall (3) and of the side walls (2) extends
20 beyond the transverse peelable connection (12, 32, 42, 52) to form gripping members.

3. Stand-up bag according to claim 1 or 2, c h a r a c t e r i s e d in that the peelable connection (15) comprises a film strip (17) arranged between the upper edge portions (16,15) of the top wall (3) and the side wall (2), said film strip being firmly

ORIGINAL SPECIFICATION

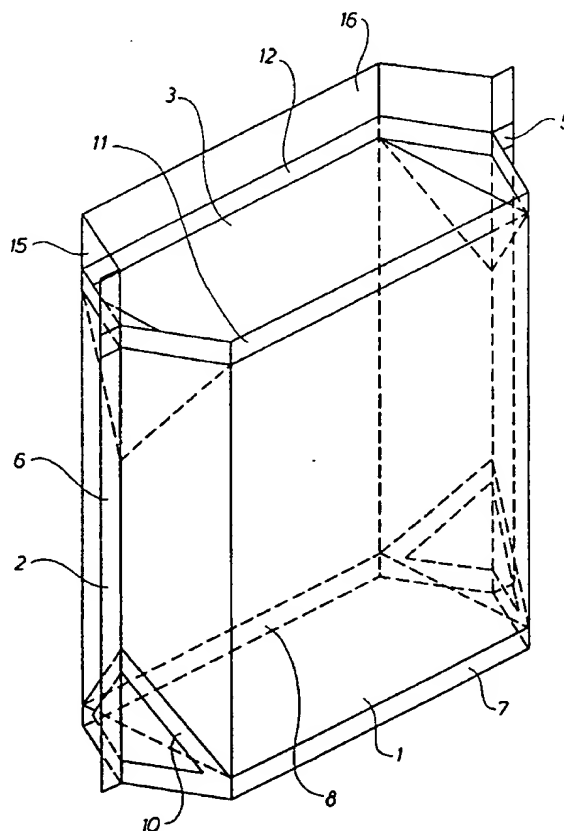


INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : B65D 33/16, 33/18	A1	(11) International Publication Number: WO 00/58166 (43) International Publication Date: 5 October 2000 (05.10.00)
(21) International Application Number: PCT/DK00/00155 (22) International Filing Date: 29 March 2000 (29.03.00) (30) Priority Data: PA 1999 00425 29 March 1999 (29.03.99) DK (71) Applicant (for all designated States except US): DANISCO A/S [DK/DK]; Langebrogade 1, P.O. Box 17, DK-1001 Copenhagen K (DK). (72) Inventor; and (75) Inventor/Applicant (for US only): SCHULZ, Werner [DK/DK]; Plantagen 87, DK-8700 Horsens (DK). (74) Agent: CHAS. HUDE A/S; H.C. Andersens Boulevard 33, DK-1780 Copenhagen V (DK).		(81) Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: STAND-UP BAG FOR FLOWABLE OR POURABLE PRODUCTS**(57) Abstract**

A stand-up bag of heat-sealable plastic film comprising two opposing side walls (1, 2) sealed together along lateral edges thereof by means of side seams (5, 6), an inwardly folded bottom wall (4) extending between the lower portions of the side walls (1, 2) and sealed to the respective side walls (1, 2) along transverse bottom seams (7) and along bottom side seams, and an inwardly folded top wall (3) extending between the upper portions of the side walls (1, 2) and connected to the respective side walls along transverse top connections (11, 12) and sealed to the respective side walls (1, 2) along top side seams. At least one of the transverse connections between the top wall (3) and the side walls is a peelable connection (12) provided between an upper edge portion (16) of the top wall (3) and an upper edge portion (15) of the adjacent side wall (2).



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
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DE	Germany	LK	Sri Lanka	SD	Sudan		
DK	Denmark	LR	Liberia	SE	Sweden		
EE	Estonia			SG	Singapore		

Title: Stand-up bag for flowable or pourable products.

Technical Field

The invention relates to a stand-up bag of a heat-sealable or weldable plastic film for containing in particular flowable or pourable products and comprising:

- 5 - two opposing side walls sealed together along lateral edges thereof by means of side seams;
- an inwardly folded bottom wall extending between the lower portions of the side walls and sealed to the respective side walls along transverse bottom seams and along bottom side seams; and
- 10 - an inwardly folded top wall extending between the upper portions of the side walls and connected to the respective side walls along transverse top connections and sealed to the respective side walls along top seams.

Background Art

- Stand-up bags of this type are known inter alia from US-A-3,935,993 and
- 15 DE-A1-2553854. Due their excellent standing properties and stability the bags have been used for a wide range of products, in particular for liquid, paste-like, powdery and granular products. It is however considered a drawback of the known stand-up bags that they are difficult to open why a pair of scissors or a knife is often needed or - as for instance known from WO 93/16928 and EP-A2-0.380.110 - they are
 - 20 provided with special discharging arrangements for easy removal of the product which makes the bag more expensive.

Brief Description of the Invention

The object of the invention is to provide a stand-up bag of the above type which is easy to open toollessly and which is simple and inexpensive to manufacture.

- 5 The stand-up bag according to the invention is characterised in that at least one of the transverse connections between the top wall and the side walls is a peelable connection provided between an upper edge portion of the top wall and an upper edge portion of the adjacent side wall. The bag is thereby easily opened by gripping the top wall and the side wall connected by means of the peelable connection and
10 pulling the two walls apart such that the peelable connection is broken.

- According to the invention the upper edge portions of the top wall and the side wall may extend beyond the transverse peelable connection to form gripping members to be gripped when the peelable connection is to be broken. In addition to facilitating the opening of the bag, this embodiment of the invention is advantageous in that the
15 portion of the top wall extending beyond the peelable connection may serve as a form of spout after the bag has been opened.

- Furthermore according to the invention the peelable connection may comprise a film strip arranged between the upper edge portions of the top wall and the side walls, said film strip being firmly (non-peelably) heat-sealed to one of the edge portions, preferably to the edge portion of the top wall, the strip having a first surface of a
20 sealing medium corresponding substantially to the sealing medium of the adjacent bag wall, and heat-sealed peelably to the second edge portion, preferably the edge portion of the side wall, the strip having a second surface of a sealing medium heat-sealed peelably to the sealing medium of the adjacent bag wall.

- 25 When the inner sealing medium of the bag walls is substantially made from polyethylene (PE), the first outer sealing medium layer of the film strip may be made

from substantially polyethylene (PE) and the second outer sealing medium layer thereof may comprise a mixture of polyethylene (PE) and polybutylene. As a result a firm seal between the polyethylene layer of the film strip and the inner polyethylene layer of the adjacent bag wall is obtained, while a peelable seal is obtained between
5 the second outer sealing medium layer (which is a mixture of PE and polybutylene) of the film strip and the polyethylene of the adjacent bag wall, the peel strength of the said peelable seal being easy to control.

Moreover according to the invention the peelable connection may comprise a film strip arranged between the upper edges of the top wall and the side wall and having
10 a first and a second outer sealing medium layer with which it is firmly (non-peelably) heat-sealed to the respective edge portions and further having an intermediate layer peelably connected to at least one of the outer sealing medium layers having a tear resistance weaker than the peel strength between the intermediate layer and the said sealing medium layer. The peelable connection is thus opened by tearing the weak
15 sealing medium layer on both sides of the sealing seam and by a delamination between the weak sealing medium layer and the intermediate layer.

In the above embodiment of the invention the intermediate layer may advantageously be formed of a pressure-sensitive adhesive, eg a self-sealing adhesive of the hot-melt type. As described above, the intermediate layer is exposed when the peelable
20 connection of the bag is opened. As the intermediate layer is made from a self-sealing adhesive, the layer adheres to the opposing side wall after the initial opening of the bag to enable reclosure of the bag.

Furthermore according to the invention the peelable connection may comprise a peel lacquer strip of the hot-melt type which is applied to at least one of the mutually
25 facing surfaces of the top wall and the upper edge portions of the side wall. Such a hot-melt strip is easy to apply and provides the peelable connections with a peel strength which is easy to control.

Moreover according to the invention above the peelable connection the upper edge portion of the top wall may be folded down to abut the outer face of the adjacent side wall. The free edge of the folded-down edge portion is preferably positioned above the peelable connection between the top wall and the side wall. The folded-down edge portion forms a flap to allow reclosure of the bag after the peelable connection has been opened.

According to the invention above the peelable connection both the upper edge portion of the top wall and the upper edge portion of the adjacent side wall may be folded down onto the adjacent side wall. The folded-down edge portions thereby form a flap to allow reclosure of the bag after the peelable connection has been opened.

In the above embodiments, wherein the upper edge portion of the top wall or both the upper edge portion of the top wall and the upper edge portion of the adjacent side wall are folded down onto the outer face of the adjacent side wall, the fold may advantageously be provided in the same level as the opposite edge of the top wall and the upper edge of the opposite side wall. As a result the bag is provided with excellent stackability.

Finally according to the invention in the area of the peelable connection the upper edge portion of either the side wall or the top wall may be folded down for abutment inner face to inner face, and the wall with the folded-down edge portion may have an outer sealing medium layer heat-sealing peelably to the inner sealing medium layer of the other wall. This embodiment of the invention makes it possible to manufacture the bag from a single film web without any further steps.

In the above embodiment of the invention the outer sealing medium layer of the wall with the folded-down edge may advantageously be a copolymer comprising polyethylene and polypropylene when the inner sealing medium layer of the bag walls is made from substantially polyethylene.

The peel strength of the peelable connections may range from 100 to 800 g/20 mm, preferably from 200 to 600 g/20 mm, and most preferably from 300 to 500 g/20 mm.

Brief Description of the Drawings

5 The invention is explained in detail below with reference to the drawings, in which

Fig. 1 is an isometric view of a stand-up bag according to the invention,

Fig. 2 is a side view of a collapsed stand-up bag according to the invention,

Fig. 3 is a sectional view along the line III-III in Fig. 2, the walls of the stand-up bag for purely illustrative reasons being separated from each other and the seals
10 therebetween thus being partially omitted or shown diagrammatically, Fig. 3 further illustrating a first embodiment of a peelable connection between a side wall and a top wall of the bag,

Fig. 4 is a partial sectional view corresponding to Fig. 3 to illustrate a second embodiment of a peelable connection,

15 Fig. 5 is a partial sectional view corresponding to Fig. 3 to illustrate a third embodiment of the peelable connection,

Fig. 6 is a partial sectional view corresponding to Fig. 3 to illustrate a fourth embodiment of a peelable connection,

Fig. 7 is a partial sectional view corresponding to Fig. 3 through a first modification
20 of the embodiment shown in Fig. 5, and

Fig. 8 is a partial sectional view corresponding to Fig. 3 of a second modification of the embodiment shown in Fig. 5.

Best Mode for Carrying Out the Invention

The stand-up bag according to the invention shown in Figs. 1 to 3 comprises two
5 opposed side walls 1,2, a top wall 3 and a bottom wall 4 arranged opposite one
another. The side walls 1,2 are sealed together by means of side seams 5,6
extending along two opposed side edges. The bottom wall 4 is folded inwardly along
a bottom wall fold 13 and sealed to the side walls 1,2 along two opposed transverse
10 seals 7,8. Correspondingly the top wall 3 is folded inwardly along a top wall fold 14
and sealed to the side wall 1 along an upper transverse seal 11 and connected to the
side wall 2 by means of a transverse peelable connection 12. The transverse peelable
connection 12 is arranged opposite the transverse seal 11 and is explained in detail
below. Furthermore both the folded top wall 3 and the folded bottom wall 4 is sealed
15 onto itself and to the side walls along the side seams 5,6. As illustrated the bag may
further have oblique seams 9,10, each extending from the fold area of the bottom
wall 4 in the respective side seam 5,6 to the adjacent transverse seams 7,8. Each of
the oblique seams 9,10 connects a side wall 1,2 to the adjacent area of the bottom
wall 4.

As shown in Figs 1 to 3 an upper edge portion 15 of the side wall 2 extends slightly
20 beyond the transverse peelable connection 12. Correspondingly an upper edge portion
16 of the top wall 3 extends slightly beyond the transverse peelable connection 12
between the top wall 13 and the side wall 2, said edge portions 15,16 forming
gripping members to be gripped when the peelable connection 12 is to be broken for
opening of the bag.

25 As shown in Figs. 1 to 3 the peelable connection comprises a film strip 17 between
the upper edge portions 16,15 of the top wall 3 and the side wall 2, said film strip

being sealed to the edge portion of the top wall 3 by means of a strong seal and sealed to the edge portion 15 of the side wall 2 by means of a peelable seal. This feature is obtained by the strip 17 comprising a first surface 18 of a sealing medium facing the top wall 3, said sealing medium layer corresponding substantially to the sealing medium layer forming the inner surface 19 of the top wall 3 and further comprising a second surface 20 of a sealing medium layer facing the side wall 2, said sealing medium sealing peelably by heat sealing to the sealing medium layer forming the inner surface 21 of the side wall 2. When the inner surface 19 of the top wall 3 and the inner surface 21 of the side wall 2 is made from polyethylene, the first surface 18 of the strip 17 may also be made from polyethylene, while the second surface 20 thereof may be formed of a mixture of polyethylene and polybutylene. When tearing open the peelable connection 12, the strip 17 remains on the top wall 3 and does not impede the discharge of the product in the bag, the discharge taking place through the upper edge portion 15 of the side wall 2, said portion serving as a form of spout.

Even though Fig. 3 illustrates that the side walls 1,2 and the bottom and top walls 4,3 are formed of separate films sealed together, it should be understood that the bag may be formed of a single film web as suggested by means of the dotted lines 22 to 24. A plurality of different plastic laminates may be used for manufacturing the bag according to the invention. Examples hereof include:

When manufacturing the bag from a single film web it is advantageous to use a laminate having both an outer and an inner sealing medium layer such that the bottom wall is sealed onto itself along side seams 5,6 in order obtain the intended good standing ability. This may be obtained by means of the laminate coex OPP/PETP (polyester)/PE, in which the PE-layer is on the inner side seen in relation to the finished bag and coex OPP denotes a co-extruded oriented polypropylene film provided with a thin sealing medium layer on each side comprising a copolymer of PP and PE. In order to obtain enhanced barrier properties a barrier layer, eg an

aluminium film, may be provided between the PETP layer and the PE layer or the coex OPP film. Furthermore the PETP layer may be replaced by an oriented polyamide (OPA).

To further increase the standing properties and stability of the bag, a stronger or more rigid film may be used for the side walls than for the bottom and top walls. The bag is then made from four sheet webs. The same laminates as mentioned above may be used, thicker laminates being used for the side walls than for the bottom and top walls. However it is also possible to use a PETP/PE laminate (or PETP/PP laminate) for the side walls, in which PE facing inwards seen in relation to the bag, and a PE/PETP/PE laminate (PP/PETP/PP laminate) or the above coex OPP/PETP/ PE laminate for the bottom and top walls. Also in the instance PETP may be replaced by OPA and the laminates may comprise a barrier layer for instance in form of an aluminium film.

It should further be noted that the bag may be formed from a single film web and from four separate film webs on a vertical form, fill and seal machine. The same applies to the manufacture of pre-fabricated bags, ie ready-made bags apart from one side seam.

Fig. 4 illustrates a second embodiment of a peelable connection 32 between the upper edge portion 15 of the side wall 2 and the upper edge portion 16 of the top wall 3. This peelable connection 32 comprises a film strip 37 arranged between the two edge portions 15 and 16 and having a first surface layer 28 and a second surface layer 29 of a sealing medium corresponding to the sealing medium forming the inner surface 19 of the top wall 3 and the sealing medium layer forming the inner surface 20 of the side wall 2, said film strip thus being heat-sealed non-peelably to the said surfaces. An intermediate layer 30 is provided between the two surface layers 28 and 29 and is connected peelably to the second surface layer 29 and preferably connected more firmly to the first surface layer 28. Further the tear resistance of the second surface

layer 29 is weaker than the peel strength between said layer and the intermediate layer 30. When the edge portions 15, 16 are pulled to open the peelable connection 32, the layer 29 is torn off along the edges of the transverse seam 31 corresponding to the edges of the sealing tool used. Furthermore a delamination takes place between the layer 29 and the intermediate layer 30 in the portion corresponding to the sealing zone. The use of an intermediate layer 30 of a pressure-sensitive adhesive allow for reclosure of the peelable connection 32 and thus of the bag after the initial opening thereof by pressing the exposed portion of the intermediate layer 30 against the corresponding portion of the edge portion 15 of the side wall 2.

10

Fig. 5 illustrates a third embodiment of a peelable connection 42. This peelable connection comprises a hot-melt strip 47 applied to the inner surface 19 of the upper edge portion 16 of the top wall 3. By activating the hot-melt by means of sealing tools, the peelable connection 42 of a width corresponding to the width of the sealing tools is provided between the edge portion 15 of the side wall 2 and the edge portion 16 of the top wall 3 in the transverse sealing zone 41.

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Fig. 6 illustrates a fourth embodiment of a peelable connection 52 between the upper edge portion 15 of the side wall and the upper edge portion 36 of the top wall 3. The upper edge portion 36 of the top wall is folded down for abutment inner face to inner face such that the outer surface 38 of the top wall 3 faces the inner surface 20 of the side wall 3. As the outer surface 38 of the top wall 3 is formed of a sealing medium sealing peelably to the inner surface 20 of the side wall, the peelable connection 52 is provided in a transverse sealing zone 51 in a width corresponding to the width of the sealing tool used to seal the upper edge portion 36 of the top wall 3 to the upper edge portion 15 of the side wall 2. In this embodiment of the peelable connection it is advantageous to use the above coex OPP/PETP/PE laminate for the top wall 3 and the side wall 2.

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In the embodiments described above a plastic zipper comprising matable, reclosable

zipper elements may be arranged above the peelable connection 12, 32, 42, 52, said elements carried by the opposed surfaces of the upper edge portion of the side wall 2 and the edge portion of the top wall 3, respectively in order to provide the bag with reclosability. In a manner known per se the zipper elements may be formed integrally
5 with the respective upper edge portion or be arranged on zipper element strips sealed to the respective upper edge portions.

Fig. 7 illustrates a first modification of the embodiment described with reference to Fig. 5. In this modification the upper end portion of the top wall 3 is provided with an extension 53 which is folded down (at reference numeral 59) onto the outer face
10 of the upper edge portion 15 of the side wall 2. The free edge 54 of extension 53 is situated above the seam 41 providing the peelable connection 42 between the side wall 2 and the top wall 3. The extension 53 thus forms a flap on the bag allowing for reclosability.

The flap or extension 53 is further sealed to the outer face of the side wall 2 in the
15 area of the side seams 5,6 of the side wall. By suitably selecting the material forming the inner surface of the top wall 3 and the outer surface of the side wall, the flap is fusion-sealed to the side wall 2 in the area of the side seams 5,6, whereby optimum reclosability is obtained.

It should be noted that in the modification shown in Fig. 7 also the embodiments
20 described with reference to Figs. 1 to 4 of the reclosable connections 12,32 may be used instead of the embodiment 42 described with reference to Fig. 5.

Moreover, it should be noted that the fold 59 also may be positioned at the same level as the opposed free edge of the top wall and the opposed side wall, as described below in connection with a further modification.

25 Fig. 8 illustrates a second modification of the embodiment described with reference

- to Fig. 5. In this modification the upper edge portion 60 of the top wall 3 and the upper edge portion 58 of the side wall 2 are jointly folded down onto the side wall at reference numeral 55. The fold 55 is substantially at the same level as the opposed edge 61 of the top wall 3 and the upper edge 56 of the opposed side wall 1. By
- 5 arranging the fold 55, the opposed edge 61 of the top wall and the upper edge 56 of the opposed side wall 1 at the same level a bag with good stackability is provided. The lower free edges of the upper folded-down edge portions 58, 60 extend beyond the peelable connection 42 provided between the top wall 3 and the side wall 2 by the sealing zone 41.
- 10 It should furthermore be noted that the hot-melt strip 47' extends onto the folded-down edge portion 60 of the top wall 3. Thus, at the same time as the peelable connection 42 is provided in the sealing zone 41, an additional peelable connection is provided between the folded-down edge portions 58, 60 in a corresponding sealing zone 57.
- 15 It should be noted that also in the modification shown in Fig. 8 the embodiments described with reference to Figs. 1 to 4 of the reclosable connections 12,32 may be used instead of the embodiment 42 described with reference to Fig. 5.

Claims

1. Stand-up bag of a heat-sealable or weldable plastic film for containing in particular flowable or pourable products and comprising:

- 5 - two opposing side walls (1, 2) sealed together along lateral edges thereof by means of side seams (5, 6);
- an inwardly folded bottom wall (4) extending between the lower portions of the side walls (1, 2) and sealed to the respective side walls (1,2) along transverse bottom seams (7, 8) and along bottom side seams; and
- 10 - an inwardly folded top wall (3) extending between the upper portions of the side walls (1, 2) and connected to the respective side walls (1,2) along transverse top connections (11, 12) and sealed to the respective side walls (1, 2) along top side seams,

c h a r a c t e r i s e d in that at least one of the transverse connections between the
15 top wall (3) and the side walls is a peelable connection (12, 32, 42, 52) provided between an upper edge portion (16, 36) of the top wall (3) and an upper edge portion (15) of the adjacent side wall (2).

2. Stand-up bag according to claim 1, c h a r a c t e r i s e d in that the upper edge portions (16, 36; 15) of the top wall (3) and of the side walls (2) extends
20 beyond the transverse peelable connection (12, 32, 42, 52) to form gripping members.

3. Stand-up bag according to claim 1 or 2, c h a r a c t e r i s e d in that the peelable connection (15) comprises a film strip (17) arranged between the upper edge portions (16,15) of the top wall (3) and the side wall (2), said film strip being firmly

(non-peelably) heat-sealed to one of the edge portions, preferably to the edge portion of the top wall (3), the strip (17) having a first surface (18) of a sealing medium corresponding substantially to the sealing medium of the adjacent bag wall (3), and heat-sealed peelably to the second edge portion, preferably the edge portion (15) of the side wall (2), the strip (17) having a second surface (20) of a sealing medium heat-sealing peelably to the sealing medium of the adjacent bag wall.

4. Stand-up bag according to claim 3, and wherein the inner sealing medium of the bag walls is made substantially from polyethylene (PE), characterised in that the first outer sealing medium layer (18) of the film strip (17) comprises a mixture of PE and polybutylene.

5. Stand-up bag according to claim 1 or 2, characterised in that the peelable connection (32) comprises a film strip (37) arranged between the upper edges (16,15) of the top wall (3) and the side wall (2) and having a first and a second outer sealing medium layer (28,29) with which it is firmly (non-peelably) heat-sealed to the respective edge portions (16,15) and further having an intermediate layer (30) peelably connected to at least one of the outer sealing medium layers having a tear resistance weaker than the peel strength between the intermediate layer (30) and the said sealing medium layer.

6. Stand-up bag according to claim 5, characterised in that the intermediate layer (30) is a pressure-sensitive adhesive.

7. Stand-up bag according to claim 1 or 2, characterised in that the peelable connection (42) comprises a peelable strip of the hot-melt type applied to at least one of the two mutually facing surfaces (19,20) of the upper edge portions (16,15) of the top wall (3) and the side wall (2).

8. Stand-up bag according to one or more of the preceding claims,

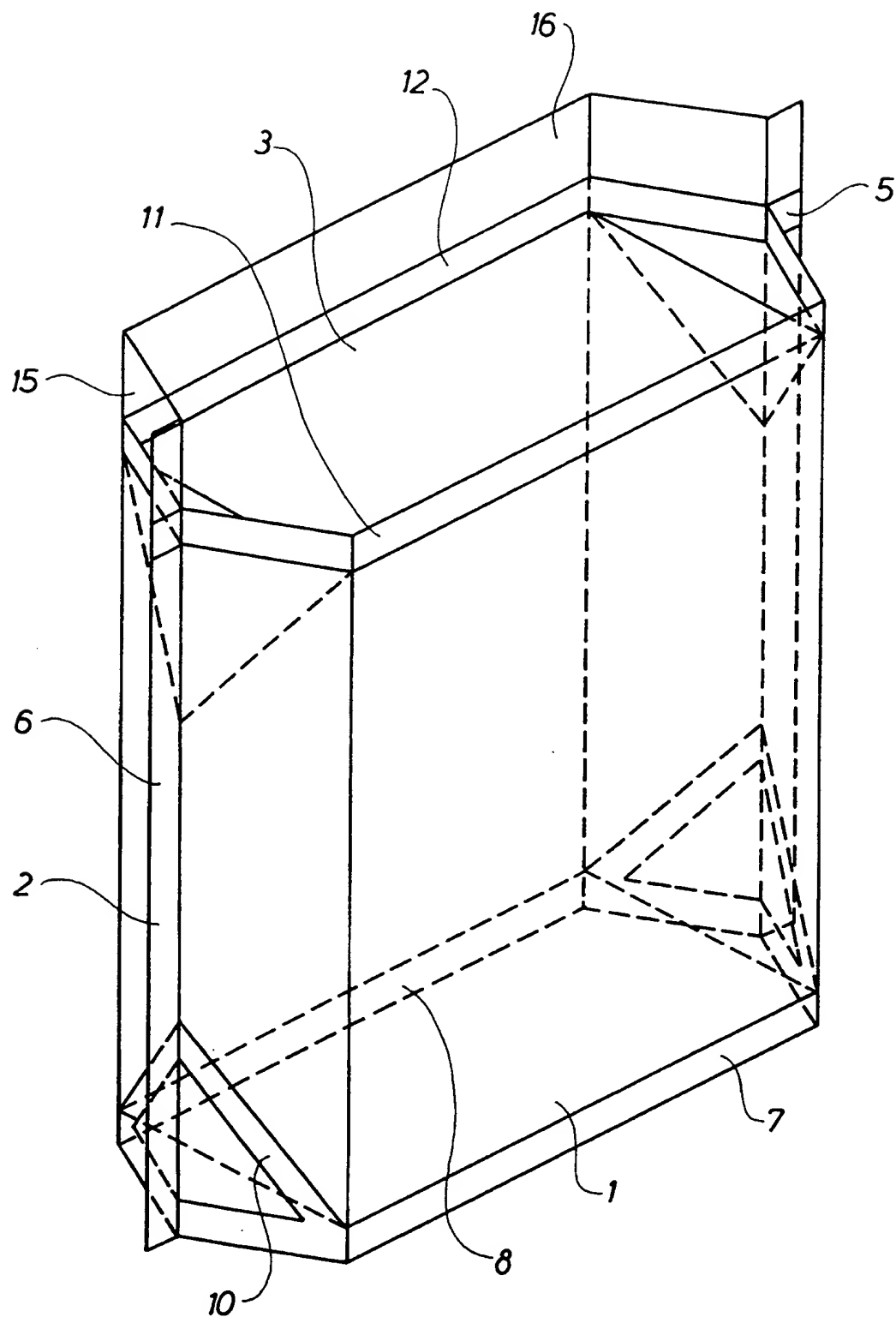
c h a r a c t e r i s e d in that above the peelable connection (42) the upper edge portion (53) of the top wall is folded down to abut the outer face of the adjacent side wall (2).

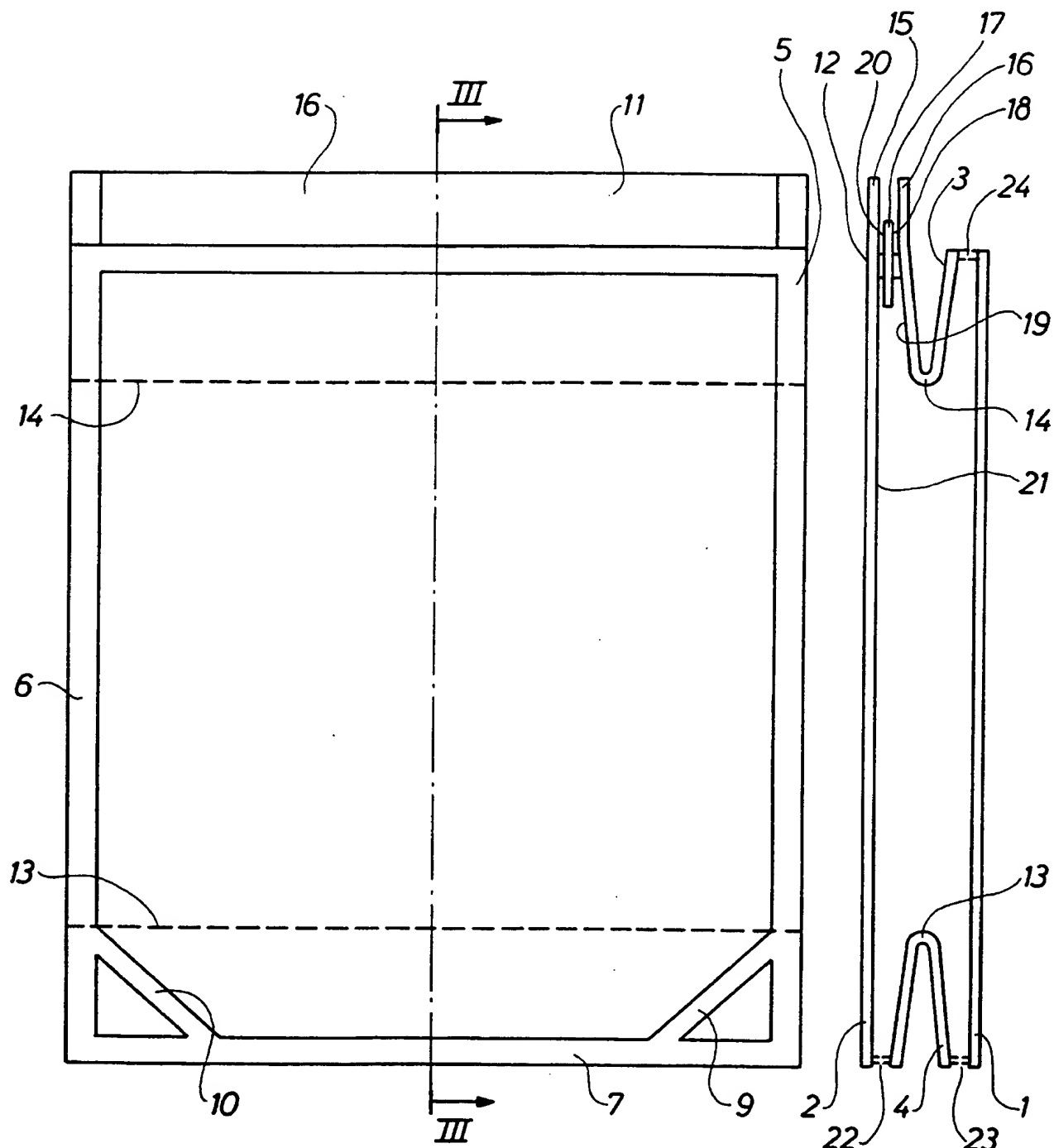
9. Stand-up bag according to one or more of the claims 1 to 8,

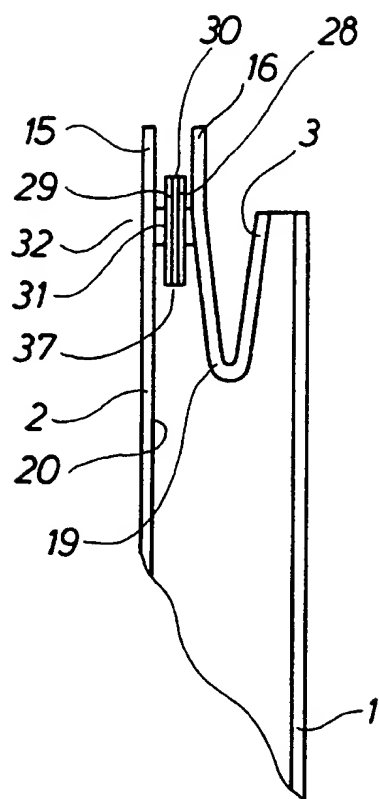
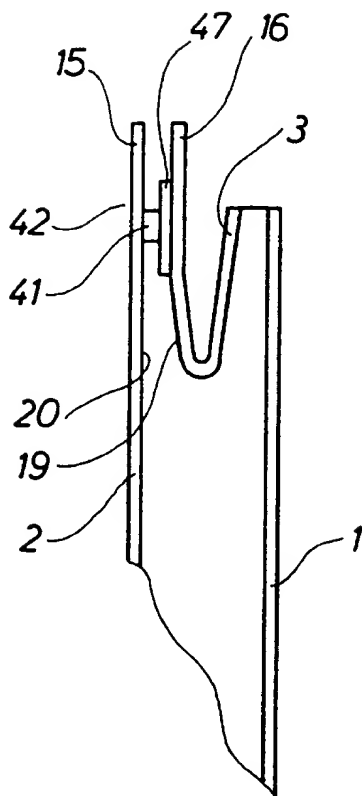
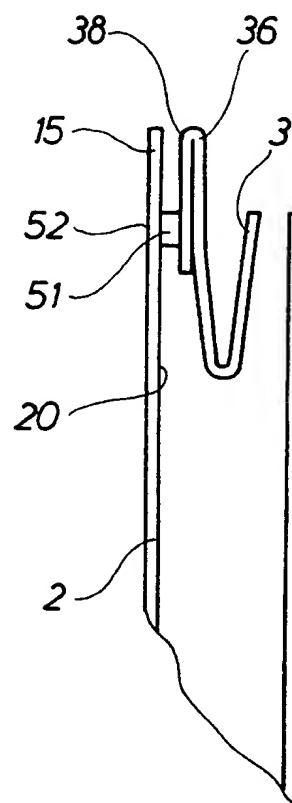
5 c h a r a c t e r i s e d in that above the peelable connection (42) both the upper edge portions (60) of the top wall (3) and the upper edge portions (58) of the adjacent side wall (2) are folded down onto the adjacent side wall (2).

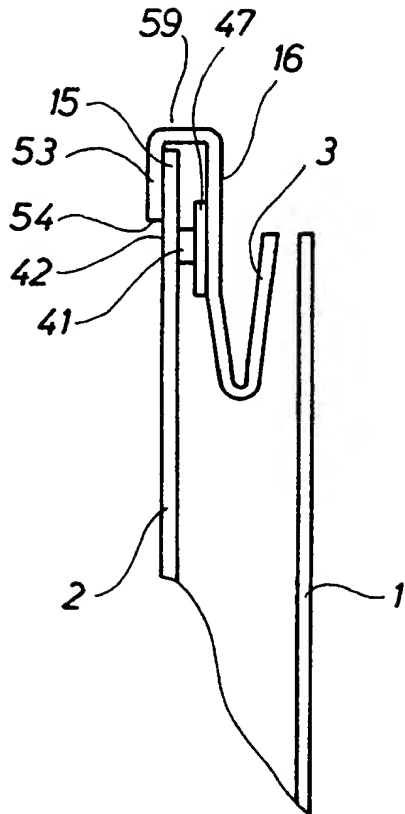
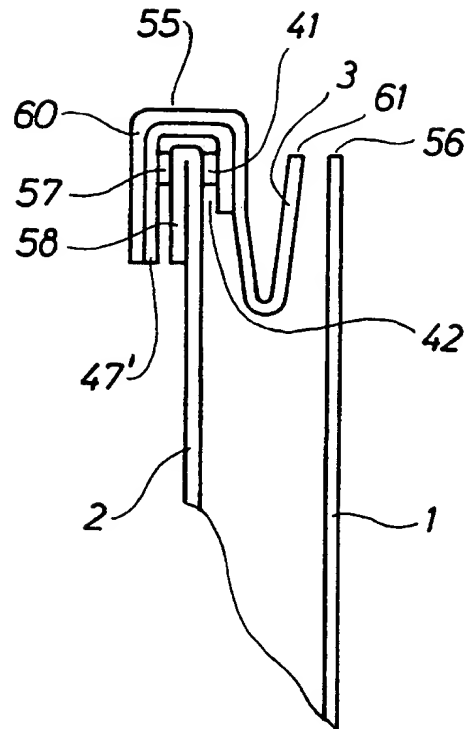
10. Stand-up bag according to claim 1 or 2, c h a r a c t e r i s e d in that in the area of the peelable connection (52) the upper edge portion (36) of the side wall or

10 top wall (3) is folded down for abutment inner face to inner face and that the wall (3) with the folded-down edge portion (36) has an outer sealing medium layer heat-sealing peelably to the inner sealing medium layer (20) of the other wall (2).

**Fig. 1**

**Fig. 2****Fig. 3**

**Fig. 4****Fig. 5****Fig. 6**

**Fig. 7****Fig. 8**

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B65D 33/16, B65D 33/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9813271 A1 (TENNECO PACKAGING INC.), 2 April 1998 (02.04.98), abstract --	1-10
A	US 5160308 A (HARRY R. PEPPIATT), 3 November 1992 (03.11.92) --	1-10
A	DE 3925981 A1 (HOECHST AG), 7 February 1991 (07.02.91) -- -----	1-10

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

13 June 2000

Date of mailing of the international search report

24.07.00

Name and mailing address of the International Searching Authority
European Patent Office P.B. 5818 Patentlaan 2
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Fax(+31-70)340-3016

Authorized officer

INGER LÖFGREN/E1s
Telephone No.

INTERNATIONAL SEARCH REPORT

Information on patent family members

02/12/99

International application No.

PCT/DK 00/00155

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
WO	9813271	A1	02/04/98	AU	4501497 A	17/04/98
				EP	0934209 A	11/08/99
				US	5788378 A	04/08/98

US	5160308	A	03/11/92	US	5033867 A	23/07/91

DE	3925981	A1	07/02/91	NONE		

PATENT COOPERATION TREATY

PCT

NOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

From the INTERNATIONAL BUREAU

To:

CHAS. HUDE A/S
H.C. Andersens Boulevard 33
DK-1780 Copenhagen V
DANEMARK

Date of mailing (day/month/year) 03 May 2000 (03.05.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 72178Jen/cor	
International application No. PCT/DK00/00155	
International publication date (day/month/year) Not yet published	
International filing date (day/month/year) 29 March 2000 (29.03.00)	Priority date (day/month/year) 29 March 1999 (29.03.99)
Applicant DANISCO A/S et al	

1. The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
2. This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
3. An asterisk(*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, **the attention of the applicant is directed to Rule 17.1(c)** which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
4. The letters "NR" appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, **the attention of the applicant is directed to Rule 17.1(c)** which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
29 Marc 1999 (29.03.99)	PA 1999 00425	DK	14 Apr 2000 (14.04.00)

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer J. Leitao Telephone No. (41-22) 338.83.38
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PATENT COOPERATION TREATY

WO 00/58166
PCT/DK00/00155

PCT

NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

From the INTERNATIONAL BUREAU

To:

CHAS. HUDE A/S
H.C. Andersen Boulevard 33
DK-1780 Copenhagen V
DANEMARK

Ing.	72178
13 OKT. 2000	
AS 400	Til hvem
NO	Coq

Date of mailing (day/month/year) 05 October 2000 (05.10.00)		IMPORTANT NOTICE	
Applicant's or agent's file reference 72178Jen/cor			
International application No. PCT/DK00/00155	International filing date (day/month/year) 29 March 2000 (29.03.00)	Priority date (day/month/year) 29 March 1999 (29.03.99)	
Applicant DANISCO A/S et al			

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
AG,AU,DZ,KP,KR,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
AE,AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,CA,CH,CN,CR,CU,CZ,DE,DK,DM,EA,EE,EP,ES,FI,GB,GD,GE,GH,GM,HR,HU,ID,IL,IN,IS,JP,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MA,MD,MG,MK,MN,MW,MX,NO,NZ,OA,PL,PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,TZ,UA,UG,UZ,VN,YU,ZA,ZW
The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).
3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on 05 October 2000 (05.10.00) under No. WO 00/58166

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer J. Zahra Telephone No. (41-22) 338.83.38
--	---

PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

INFORMATION CONCERNING ELECTED
OFFICES NOTIFIED OF THEIR ELECTION

(PCT Rule 61.3)

To:

CHAS. HUDE A/S
H.C. Andersens Boulevard 33
DK-1780 Copenhagen V
JenSagstype J.nr.
PCT 72178

DK-1780 Copenhagen V

DANEMARK

Date of mailing (day/month/year)
01 November 2000 (01.11.00)

10 NOV 2000

AS 400

Til hvem

Applicant's or agent's file reference
72178Jen/cor

Cs

Cor

IMPORTANT INFORMATION

International application No.
PCT/DK00/00155International filing date (day/month/year)
29 March 2000 (29.03.00)Priority date (day/month/year)
29 March 1999 (29.03.99)

Applicant

DANISCO A/S et al

1. The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:

AP : GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW

EP : AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

National : AG, AU, BG, CA, CN, CZ, DE, DZ, IL, JP, KP, KR, MN, NO, NZ, PL, RO, RU, SE, SK, US

2. The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:

EA : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

OA : BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

National : AE, AL, AM, AT, AZ, BA, BB, BR, BY, CH, CR, CU, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IN, IS, KE, KG, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MW, MX, PT, SD, SG, SI, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW

3. The applicant is reminded that he must enter the "national phase" before the expiration of 30 months from the priority date before each of the Offices listed above. This must be done by paying the national fee(s) and furnishing, if prescribed, a translation of the international application (Article 39(1)(a)), as well as, where applicable, by furnishing a translation of any annexes of the international preliminary examination report (Article 36(3)(b) and Rule 74.1).

Some offices have fixed time limits expiring later than the above-mentioned time limit. For detailed information about the applicable time limits and the acts to be performed upon entry into the national phase before a particular Office, see Volume II of the PCT Applicant's Guide.

The entry into the European regional phase is postponed until 31 months from the priority date for all States designated for the purposes of obtaining a European patent.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer:

Nestor Santesso

Telephone No. (41-22) 338.83.38

The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/ CP

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only		
Identification of IPEA		Date of receipt of DEMAND
Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION		Applicant's or agent's file reference 72178 Jen/cor
International application No. PCT/DK00/00155	International filing date (day/month/year) 29-03-2000 (29032000)	(Earliest) Priority date (day/month/year) 29-03-1999 (29031999)
Title of invention STAND-UP BAG FOR FLOWABLE OR POURABLE PRODUCTS		
Box No. II APPLICANT(S)		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) DANISCO A/S 1, Langebrogade P.O. Box 17 DK-1001 Copenhagen K Denmark		Telephone No.: +45 32 66 20 00 Facsimile No.: +45 32 66 21 75 Teleprinter No.: -
State (that is, country) of nationality: Denmark		State (that is, country) of residence: Denmark
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) SCHULZ, Werner 87, Plantagen DK-8700 Horsens Denmark		
State (that is, country) of nationality: Denmark		State (that is, country) of residence: Denmark
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) 		
State (that is, country) of nationality:		State (that is, country) of residence:
<input type="checkbox"/> Further applicants are indicated on a continuation sheet.		

Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCEThe following person is ☒ agent ☐ common representativeand ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*CHAS. HUDE A/S
33, H.C. Andersens Boulevard
DK-1780 Copenhagen V
Denmark

Telephone No.:

+45 33 15 45 14

Facsimile No.:

+45 33 15 45 35

Teleprinter No.:

-

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.**Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION****Statement concerning amendments:***

1. The applicant wishes the international preliminary examination to start on the basis of:

☒ the international application as originally filedthe description ☒ as originally filed☐ as amended under Article 34the claims ☒ as originally filed☐ as amended under Article 19 (together with any accompanying statement)☐ as amended under Article 34the drawings ☒ as originally filed☐ as amended under Article 342. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English☒ which is the language in which the international application was filed.☐ which is the language of a translation furnished for the purposes of international search.☐ which is the language of publication of the international application.☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.**Box No. V ELECTION OF STATES**The applicant hereby elects all eligible States *(that is, all States which have been designated and which are bound by Chapter II of the PCT)*

excluding the following States which the applicant wishes not to elect:

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

- | | | |
|--|---|--------|
| 1. translation of international application | : | sheets |
| 2. amendments under Article 34 | : | sheets |
| 3. copy (or, where required, translation) of amendments under Article 19 | : | sheets |
| 4. copy (or, where required, translation) of statement under Article 19 | : | sheets |
| 5. letter | : | sheets |
| 6. other (<i>specify</i>) | : | sheets |

For International Preliminary
Examining Authority use only

received	not received
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

The demand is also accompanied by the item(s) marked below:

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> fee calculation sheet | 4. <input type="checkbox"/> statement explaining lack of signature |
| 2. <input type="checkbox"/> separate signed power of attorney | 5. <input type="checkbox"/> nucleotide and or amino acid sequence listing in computer readable form |
| 3. <input type="checkbox"/> copy of general power of attorney, reference number, if any: | 6. <input checked="" type="checkbox"/> other (<i>specify</i>): Copy of Int. search report |

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).

CHAS. HUDE A/S

Peter Kim Jensen

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):

- | | |
|--|---|
| 3. <input type="checkbox"/> The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply. | <input type="checkbox"/> The applicant has been informed accordingly. |
| 4. <input type="checkbox"/> The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5. | |
| 5. <input type="checkbox"/> Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82. | |

For International Bureau use only

Demand received from IPEA on:

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum) 72178Jen/cor

Box No. I TITLE OF INVENTION

Stand-up bag for flowable or pourable products.

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

DANISCO A/S
1, Langebrogade,
P.O. Box 17
DK-1001 Copenhagen K
Denmark

☐ This person is also inventor.

Telephone No.
+ 45 32 66 20 00

Facsimile No.
+45 32 66 21 75

Teleprinter No.
-

State (that is, country) of nationality:
Denmark

State (that is, country) of residence:
Denmark

This person is applicant for the purposes of: ☐ all designated States ☒ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

SCHULZ, Werner
87, Plantagen
DK-8700 Horsens
Denmark

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:
Denmark

State (that is, country) of residence:
Denmark

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

☒ agent ☐ common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

CHAS. HUDE A/S
33, H.C. Andersens Boulevard
DK-1780 Copenhagen V
Denmark

Telephone No.
+ 45 33 15 45 14

Facsimile No.
+45 33 15 45 35

Teleprinter No.
-

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No. V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

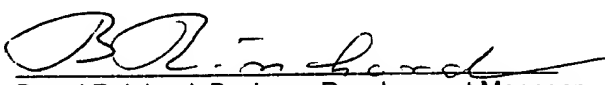
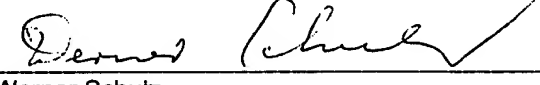
Regional Patent

- ☒ **AP** ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ **EA** Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ **EP** European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ **OA** OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> AE United Arab Emirates | <input checked="" type="checkbox"/> LR Liberia | |
| <input checked="" type="checkbox"/> AL Albania | <input checked="" type="checkbox"/> LS Lesotho | |
| <input checked="" type="checkbox"/> AM Armenia | <input checked="" type="checkbox"/> LT Lithuania | |
| <input checked="" type="checkbox"/> AT Austria | <input checked="" type="checkbox"/> LU Luxembourg | |
| <input checked="" type="checkbox"/> AU Australia | <input checked="" type="checkbox"/> LV Latvia | |
| <input checked="" type="checkbox"/> AZ Azerbaijan | <input checked="" type="checkbox"/> MA Morocco | |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina | <input checked="" type="checkbox"/> MD Republic of Moldova | |
| <input checked="" type="checkbox"/> BB Barbados | <input checked="" type="checkbox"/> MG Madagascar | |
| <input checked="" type="checkbox"/> BG Bulgaria | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia | |
| <input checked="" type="checkbox"/> BR Brazil | | |
| <input checked="" type="checkbox"/> BY Belarus | <input checked="" type="checkbox"/> MN Mongolia | |
| <input checked="" type="checkbox"/> CA Canada | <input checked="" type="checkbox"/> MW Malawi | |
| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein | <input checked="" type="checkbox"/> MX Mexico | |
| <input checked="" type="checkbox"/> CN China | <input checked="" type="checkbox"/> NO Norway | |
| <input checked="" type="checkbox"/> CR Costa Rica | <input checked="" type="checkbox"/> NZ New Zealand | |
| <input checked="" type="checkbox"/> CU Cuba | <input checked="" type="checkbox"/> PL Poland | |
| <input checked="" type="checkbox"/> CZ Czech Republic | <input checked="" type="checkbox"/> PT Portugal | |
| <input checked="" type="checkbox"/> DE Germany | <input checked="" type="checkbox"/> RO Romania | |
| <input checked="" type="checkbox"/> DK Denmark | <input checked="" type="checkbox"/> RU Russian Federation | |
| <input checked="" type="checkbox"/> DM Dominica | <input checked="" type="checkbox"/> SD Sudan | |
| <input checked="" type="checkbox"/> EE Estonia | <input checked="" type="checkbox"/> SE Sweden | |
| <input checked="" type="checkbox"/> ES Spain | <input checked="" type="checkbox"/> SG Singapore | |
| <input checked="" type="checkbox"/> FI Finland | <input checked="" type="checkbox"/> SI Slovenia | |
| <input checked="" type="checkbox"/> GB United Kingdom | <input checked="" type="checkbox"/> SK Slovakia | |
| <input checked="" type="checkbox"/> GD Grenada | <input checked="" type="checkbox"/> SL Sierra Leone | |
| <input checked="" type="checkbox"/> GE Georgia | <input checked="" type="checkbox"/> TJ Tajikistan | |
| <input checked="" type="checkbox"/> GH Ghana | <input checked="" type="checkbox"/> TM Turkmenistan | |
| <input checked="" type="checkbox"/> GM Gambia | <input checked="" type="checkbox"/> TR Turkey | |
| <input checked="" type="checkbox"/> HR Croatia | <input checked="" type="checkbox"/> TT Trinidad and Tobago | |
| <input checked="" type="checkbox"/> HU Hungary | <input checked="" type="checkbox"/> TZ United Republic of Tanzania | |
| <input checked="" type="checkbox"/> ID Indonesia | <input checked="" type="checkbox"/> UA Ukraine | |
| <input checked="" type="checkbox"/> IL Israel | <input checked="" type="checkbox"/> UG Uganda | |
| <input checked="" type="checkbox"/> IN India | <input checked="" type="checkbox"/> US United States of America | |
| <input checked="" type="checkbox"/> IS Iceland | | |
| <input checked="" type="checkbox"/> JP Japan | <input checked="" type="checkbox"/> UZ Uzbekistan | |
| <input checked="" type="checkbox"/> KE Kenya | <input checked="" type="checkbox"/> VN Viet Nam | |
| <input checked="" type="checkbox"/> KG Kyrgyzstan | <input checked="" type="checkbox"/> YU Yugoslavia | |
| <input checked="" type="checkbox"/> KP Democratic People's Republic of Korea | <input checked="" type="checkbox"/> ZA South Africa | |
| | <input checked="" type="checkbox"/> ZW Zimbabwe | |
| <input checked="" type="checkbox"/> KR Republic of Korea | Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet: | |
| <input checked="" type="checkbox"/> KZ Kazakhstan | <input checked="" type="checkbox"/> DZ Algeria | |
| <input checked="" type="checkbox"/> LC Saint Lucia | <input checked="" type="checkbox"/> AG Antigua and Barbuda | |
| <input checked="" type="checkbox"/> LK Sri Lanka | | |

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

Box No. VI PRIORITY CLAIM		<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.		
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application:* regional Office	international application: receiving Office
item (1) 29 March 1999 -290399	PA 1999 00425	Denmark		
item (2)				
item (3)				
<input type="checkbox"/> The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s):				
* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.				
Box No. VII INTERNATIONAL SEARCHING AUTHORITY				
Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):		Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority): Date (day/month/year) Number Country (or regional Office)		
ISA / EPO				
Box No. VIII CHECK LIST; LANGUAGE OF FILING				
This international application contains the following number of sheets: request : 3 description (excluding sequence listing part) : 11 claims : 3 abstract : 1 drawings : 4 sequence listing part of description : Total number of sheets : 22		This international application is accompanied by the item(s) marked below: 1. <input checked="" type="checkbox"/> fee calculation sheet 2. <input type="checkbox"/> separate signed power of attorney 3. <input type="checkbox"/> copy of general power of attorney; reference number, if any: 4. <input type="checkbox"/> statement explaining lack of signature 5. <input checked="" type="checkbox"/> priority document(s) identified in Box No. VI as item(s): 6. <input type="checkbox"/> translation of international application into (language): 7. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material 8. <input type="checkbox"/> nucleotide and/or amino acid sequence listing in computer readable form 9. <input checked="" type="checkbox"/> other (specify): copy of PTO letter by DA PTO		
Figure of the drawings which should accompany the abstract: 1		Language of filing of the international application: English		
Box No. IX SIGNATURE OF APPLICANT OR AGENT				
Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).				
Danisco A/S				
 Bernd Reinhard, Business Development Manager				
 Werner Schulz				

For receiving Office use only	
1. Date of actual receipt of the purported international application:	2. Drawings: <input type="checkbox"/> received: <input type="checkbox"/> not received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:	
4. Date of timely receipt of the required corrections under PCT Article 11(2):	
5. International Searching Authority (if two or more are competent): ISA /	
6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.	

For International Bureau use only
Date of receipt of the record copy by the International Bureau:

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 72178Jen/cor	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/DK 00/00155	International filing date (day/month/year) 29 March 2000	(Earliest) Priority Date (day/month/year) 29 March 1999
Applicant DANISCO A/S et al		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (See Box I).

2. ☐ Unity of invention is lacking (See Box II).

3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing

☐ filed with the international application.

☐ furnished by the applicant separately from the international application,

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ transcribed by this Authority.

4. With regard to the title, ☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is:

Figure No. 1

☒ as suggested by the applicant.

☐ None of the figures.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

INTERNATIONAL SEARCH REPORT

1

International application No.
PCT/DK 00/00155

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B65D 33/16, B65D 33/18
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9813271 A1 (TENNECO PACKAGING INC.), 2 April 1998 (02.04.98), abstract --	1-10
A	US 5160308 A (HARRY R. PEPPIATT), 3 November 1992 (03.11.92) --	1-10
A	DE 3925981 A1 (HOECHST AG), 7 February 1991 (07.02.91) -----	1-10

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

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INTERNATIONAL SEARCH REPORT
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Title: Stand-up bag for flowable or pourable products.

Technical Field

The invention relates to a stand-up bag of a heat-sealable or weldable plastic film for containing in particular flowable or pourable products and comprising:

- 5 - two opposing side walls sealed together along lateral edges thereof by means of side seams;
- an inwardly folded bottom wall extending between the lower portions of the side walls and sealed to the respective side walls along transverse bottom seams and along bottom side seams; and
- 10 - an inwardly folded top wall extending between the upper portions of the side walls and connected to the respective side walls along transverse top connections and sealed to the respective side walls along top seams.

Background Art

- Stand-up bags of this type are known inter alia from US-A-3,935,993 and
- 15 DE-A1-2553854. Due their excellent standing properties and stability the bags have been used for a wide range of products, in particular for liquid, paste-like, powdery and granular products. It is however considered a drawback of the known stand-up bags that they are difficult to open why a pair of scissors or a knife is often needed or - as for instance known from WO 93/16928 and EP-A2-0.380.110 - they are
- 20 provided with special discharging arrangements for easy removal of the product which makes the bag more expensive.

The above EP-A2 0380110 further discloses a stand-up bag of the type stated in the

preamble to claim 1 of the present invention and wherein the transverse top connections between the upper edge portions of the top wall and the upper edge portions of the respective side walls are non-peelable connections. The bag is provided with a closable discharge nozzle in the upper portion of one of the side walls for discharging the contents of the bag.

Finally WO 99/10246 discloses a bag having an inwardly folded top wall and comprising a reclosable fastening member between the upper edge portion of the top wall and an upper edge portion of the adjacent side wall. In the shown and described embodiment the reclosable fastening member is formed of a plastic zipper. In addition hereto on page 5, lines 13-14 the following examples of reclosable fastening members are mentioned: a plastic zipper with a slider, an adhesive fastener, VELCRO and snaps. However none of the mentioned or shown fasteners are capable of providing a gas-tight connection or closure and thus a gas-tight bag. The provision of such fasteners is furthermore both difficult and expensive.

15 Brief Description of the Invention

The object of the invention is to provide a stand-up bag of the above type which is easy to open toollessly and which is simple and inexpensive to manufacture.

The stand-up bag according to the invention is characterised in that at least one of the transverse connections between the top wall and the side walls is a heat-sealed peelable connection provided between an upper edge portion of the top wall and an upper edge portion of the adjacent side wall. The bag is thereby easily opened by gripping the top wall and the side wall connected by means of the peelable connection and pulling the two walls apart such that the peelable connection is broken.

According to the invention the upper edge portions of the top wall and the side wall

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may extend beyond the transverse peelable connection to form gripping members to be gripped when the peelable connection is to be broken. In addition to facilitating the opening of the bag, this embodiment of the invention is advantageous in that the portion of the top wall extending beyond the peelable connection may serve as a form
5 of spout after the bag has been opened.

Furthermore according to the invention the peelable connection may comprise a film strip arranged between the upper edge portions of the top wall and the side walls, said film strip being firmly (non-peelably) heat-sealed to one of the edge portions, preferably to the edge portion of the top wall, the strip having a first surface of a
10 sealing medium corresponding substantially to the sealing medium of the adjacent bag wall, and heat-sealed peelably to the second edge portion, preferably the edge portion of the side wall, the strip having a second surface of a sealing medium heat-sealed peelably to the sealing medium of the adjacent bag wall.

When the inner sealing medium of the bag walls is substantially made from
15 polyethylene (PE), the first outer sealing medium layer of the film strip may be made

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from substantially polyethylene (PE) and the second outer sealing medium layer thereof may comprise a mixture of polyethylene (PE) and polybutylene. As a result a firm seal between the polyethylene layer of the film strip and the inner polyethylene layer of the adjacent bag wall is obtained, while a peelable seal is obtained between
5 the second outer sealing medium layer (which is a mixture of PE and polybutylene) of the film strip and the polyethylene of the adjacent bag wall, the peel strength of the said peelable seal being easy to control.

Moreover according to the invention the peelable connection may comprise a film strip arranged between the upper edges of the top wall and the side wall and having
10 a first and a second outer sealing medium layer with which it is firmly (non-peelably) heat-sealed to the respective edge portions and further having an intermediate layer peelably connected to at least one of the outer sealing medium layers having a tear resistance weaker than the peel strength between the intermediate layer and the said sealing medium layer. The peelable connection is thus opened by tearing the weak
15 sealing medium layer on both sides of the sealing seam and by a delamination between the weak sealing medium layer and the intermediate layer.

In the above embodiment of the invention the intermediate layer may advantageously be formed of a pressure-sensitive adhesive, eg a self-sealing adhesive of the hot-melt type. As described above, the intermediate layer is exposed when the peelable
20 connection of the bag is opened. As the intermediate layer is made from a self-sealing adhesive, the layer adheres to the opposing side wall after the initial opening of the bag to enable reclosure of the bag.

Furthermore according to the invention the peelable connection may comprise a peel lacquer strip of the hot-melt type which is applied to at least one of the mutually
25 facing surfaces of the top wall and the upper edge portions of the side wall. Such a hot-melt strip is easy to apply and provides the peelable connections with a peel strength which is easy to control.

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Moreover according to the invention above the peelable connection the upper edge portion of the top wall may be folded down to abut the outer face of the adjacent side wall. The free edge of the folded-down edge portion is preferably positioned above the peelable connection between the top wall and the side wall. The folded-down edge portion forms a flap to allow reclosure of the bag after the peelable connection has been opened.

According to the invention above the peelable connection both the upper edge portion of the top wall and the upper edge portion of the adjacent side wall may be folded down onto the adjacent side wall. The folded-down edge portions thereby form a flap to allow reclosure of the bag after the peelable connection has been opened.

In the above embodiments, wherein the upper edge portion of the top wall or both the upper edge portion of the top wall and the upper edge portion of the adjacent side wall are folded down onto the outer face of the adjacent side wall, the fold may advantageously be provided in the same level as the opposite edge of the top wall and the upper edge of the opposite side wall. As a result the bag is provided with excellent stackability.

Finally according to the invention in the area of the peelable connection the upper edge portion of either the side wall or the top wall may be folded down for abutment inner face to inner face, and the wall with the folded-down edge portion may have an outer sealing medium layer heat-sealing peelably to the inner sealing medium layer of the other wall. This embodiment of the invention makes it possible to manufacture the bag from a single film web without any further steps.

In the above embodiment of the invention the outer sealing medium layer of the wall with the folded-down edge may advantageously be a copolymer comprising polyethylene and polypropylene when the inner sealing medium layer of the bag walls is made from substantially polyethylene.

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The peel strength of the peelable connections may range from 100 to 800 g/20 mm, preferably from 200 to 600 g/20 mm, and most preferably from 300 to 500 g/20 mm.

Brief Description of the Drawings

5 The invention is explained in detail below with reference to the drawings, in which

Fig. 1 is an isometric view of a stand-up bag according to the invention,

Fig. 2 is a side view of a collapsed stand-up bag according to the invention,

Fig. 3 is a sectional view along the line III-III in Fig. 2, the walls of the stand-up bag for purely illustrative reasons being separated from each other and the seals therebetween thus being partially omitted or shown diagrammatically, Fig. 3 further
10 illustrating a first embodiment of a peelable connection between a side wall and a top wall of the bag,

Fig. 4 is a partial sectional view corresponding to Fig. 3 to illustrate a second embodiment of a peelable connection,

15 Fig. 5 is a partial sectional view corresponding to Fig. 3 to illustrate a third embodiment of the peelable connection,

Fig. 6 is a partial sectional view corresponding to Fig. 3 to illustrate a fourth embodiment of a peelable connection,

Fig. 7 is a partial sectional view corresponding to Fig. 3 through a first modification
20 of the embodiment shown in Fig. 5, and

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Fig. 8 is a partial sectional view corresponding to Fig. 3 of a second modification of the embodiment shown in Fig. 5.

Best Mode for Carrying Out the Invention

The stand-up bag according to the invention shown in Figs. 1 to 3 comprises two
 5 opposed side walls 1,2, a top wall 3 and a bottom wall 4 arranged opposite one
 another. The side walls 1,2 are sealed together by means of side seams 5,6
 extending along two opposed side edges. The bottom wall 4 is folded inwardly along
 a bottom wall fold 13 and sealed to the side walls 1,2 along two opposed transverse
 seals 7,8. Correspondingly the top wall 3 is folded inwardly along a top wall fold 14
 10 and sealed to the side wall 1 along an upper transverse seal 11 and connected to the
 side wall 2 by means of a transverse peelable connection 12. The transverse peelable
 connection 12 is arranged opposite the transverse seal 11 and is explained in detail
 below. Furthermore both the folded top wall 3 and the folded bottom wall 4 is sealed
 onto itself and to the side walls along the side seams 5,6. As illustrated the bag may
 15 further have oblique seams 9,10, each extending from the fold area of the bottom
 wall 4 in the respective side seam 5,6 to the adjacent transverse seams 7,8. Each of
 the oblique seams 9,10 connects a side wall 1,2 to the adjacent area of the bottom
 wall 4.

As shown in Figs 1 to 3 an upper edge portion 15 of the side wall 2 extends slightly
 20 beyond the transverse peelable connection 12. Correspondingly an upper edge
 portion 16 of the top wall 3 extends slightly beyond the transverse peelable
 connection 12 between the top wall 13 and the side wall 2, said edge portions 15,16
 forming gripping members to be gripped when the peelable connection 12 is to be
 broken for opening of the bag.

25 As shown in Figs. 1 to 3 the peelable connection comprises a film strip 17 between
 the upper edge portions 16,15 of the top wall 3 and the side wall 2, said film strip

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being sealed to the edge portion of the top wall 3 by means of a strong seal and sealed to the edge portion 15 of the side wall 2 by means of a peelable seal. This feature is obtained by the strip 17 comprising a first surface 18 of a sealing medium facing the top wall 3, said sealing medium layer corresponding substantially to the sealing medium layer forming the inner surface 19 of the top wall 3 and further comprising a second surface 20 of a sealing medium layer facing the side wall 2, said sealing medium sealing peelably by heat sealing to the sealing medium layer forming the inner surface 21 of the side wall 2. When the inner surface 19 of the top wall 3 and the inner surface 21 of the side wall 2 is made from polyethylene, the first surface 18 of the strip 17 may also be made from polyethylene, while the second surface 20 thereof may be formed of a mixture of polyethylene and polybutylene. When tearing open the peelable connection 12, the strip 17 remains on the top wall 3 and does not impede the discharge of the product in the bag, the discharge taking place through the upper edge portion 15 of the side wall 2, said portion serving as a form of spout.

Even though Fig. 3 illustrates that the side walls 1,2 and the bottom and top walls 4,3 are formed of separate films sealed together, it should be understood that the bag may be formed of a single film web as suggested by means of the dotted lines 22 to 24. A plurality of different plastic laminates may be used for manufacturing the bag according to the invention. Examples hereof include:

When manufacturing the bag from a single film web it is advantageous to use a laminate having both an outer and an inner sealing medium layer such that the bottom wall is sealed onto itself along side seams 5,6 in order obtain the intended good standing ability. This may be obtained by means of the laminate coex OPP/PETP (polyester)/PE, in which the PE-layer is on the inner side seen in relation to the finished bag and coex OPP denotes a co-extruded oriented polypropylene film provided with a thin sealing medium layer on each side comprising a copolymer of PP and PE. In order to obtain enhanced barrier properties a barrier layer, eg an

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aluminium film, may be provided between the PETP layer and the PE layer or the coex OPP film. Furthermore the PETP layer may be replaced by an oriented polyamide (OPA).

To further increase the standing properties and stability of the bag, a stronger or
 5 more rigid film may be used for the side walls than for the bottom and top walls. The bag is then made from four sheet webs. The same laminates as mentioned above may be used, thicker laminates being used for the side walls than for the bottom and top walls. However it is also possible to use a PETP/PE laminate (or PETP/PP laminate) for the side walls, in which PE facing inwards seen in relation to the bag, and a
 10 PE/PETP/PE laminate (PP/PETP/PP laminate) or the above coex OPP/PETP/ PE laminate for the bottom and top walls. Also in the instance PETP may be replaced by OPA and the laminates may comprise a barrier layer for instance in form of an aluminium film.

It should further be noted that the bag may be formed from a single film web and
 15 from four separate film webs on a vertical form, fill and seal machine. The same applies to the manufacture of pre-fabricated bags, ie ready-made bags apart from one side seam.

Fig. 4 illustrates a second embodiment of a peelable connection 32 between the upper edge portion 15 of the side wall 2 and the upper edge portion 16 of the top wall 3.
 20 This peelable connection 32 comprises a film strip 37 arranged between the two edge portions 15 and 16 and having a first surface layer 28 and a second surface layer 29 of a sealing medium corresponding to the sealing medium forming the inner surface 19 of the top wall 3 and the sealing medium layer forming the inner surface 20 of the side wall 2, said film strip thus being heat-sealed non-peelably to the said surfaces.
 25 An intermediate layer 30 is provided between the two surface layers 28 and 29 and is connected peelably to the second surface layer 29 and preferably connected more firmly to the first surface layer 28. Further the tear resistance of the second surface

layer 29 is weaker than the peel strength between said layer and the intermediate layer 30. When the edge portions 15,16 are pulled to open the peelable connection 32, the layer 29 is torn off along the edges of the transverse seam 31 corresponding to the edges of the sealing tool used. Furthermore a delamination takes place between the layer 29 and the intermediate layer 30 in the portion corresponding to the sealing zone. The use of an intermediate layer 30 of a pressure-sensitive adhesive allow for reclosure of the peelable connection 32 and thus of the bag after the initial opening thereof by pressing the exposed portion of the intermediate layer 30 against the corresponding portion of the edge portion 15 of the side wall 2.

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Fig. 5 illustrates a third embodiment of a peelable connection 42. This peelable connection comprises a hot-melt strip 47 applied to the inner surface 19 of the upper edge portion 16 of the top wall 3. By activating the hot-melt by means of sealing tools, the peelable connection 42 of a width corresponding to the width of the sealing tools is provided between the edge portion 15 of the side wall 2 and the edge portion 16 of the top wall 3 in the transverse sealing zone 41.

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Fig. 6 illustrates a fourth embodiment of a peelable connection 52 between the upper edge portion 15 of the side wall and the upper edge portion 36 of the top wall 3. The upper edge portion 36 of the top wall is folded down for abutment inner face to inner face such that the outer surface 38 of the top wall 3 faces the inner surface 20 of the side wall 3. As the outer surface 38 of the top wall 3 is formed of a sealing medium sealing peelably to the inner surface 20 of the side wall, the peelable connection 52 is provided in a transverse sealing zone 51 in a width corresponding to the width of the sealing tool used to seal the upper edge portion 36 of the top wall 3 to the upper edge portion 15 of the side wall 2. In this embodiment of the peelable connection it is advantageous to use the above coex OPP/PETP/PE laminate for the top wall 3 and the side wall 2.

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In the embodiments described above a plastic zipper comprising matable, reclosable

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zipper elements may be arranged above the peelable connection 12, 32, 42, 52, said elements carried by the opposed surfaces of the upper edge portion of the side wall 2 and the edge portion of the top wall 3, respectively in order to provide the bag with reclosability. In a manner known per se the zipper elements may be formed integrally
 5 with the respective upper edge portion or be arranged on zipper element strips sealed to the respective upper edge portions.

Fig. 7 illustrates a first modification of the embodiment described with reference to Fig. 5. In this modification the upper end portion of the top wall 3 is provided with an extension 53 which is folded down (at reference numeral 59) onto the outer face
 10 of the upper edge portion 15 of the side wall 2. The free edge 54 of extension 53 is situated above the seam 41 providing the peelable connection 42 between the side wall 2 and the top wall 3. The extension 53 thus forms a flap on the bag allowing for reclosability.

The flap or extension 53 is further sealed to the outer face of the side wall 2 in the
 15 area of the side seams 5,6 of the side wall. By suitably selecting the material forming the inner surface of the top wall 3 and the outer surface of the side wall, the flap is fusion-sealed to the side wall 2 in the area of the side seams 5,6, whereby optimum reclosability is obtained.

It should be noted that in the modification shown in Fig. 7 also the embodiments
 20 described with reference to Figs. 1 to 4 of the reclosable connections 12,32 may be used instead of the embodiment 42 described with reference to Fig. 5.

Moreover, it should be noted that the fold 59 also may be positioned at the same level as the opposed free edge of the top wall and the opposed side wall, as described below in connection with a further modification.

25 Fig. 8 illustrates a second modification of the embodiment described with reference

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- to Fig. 5. In this modification the upper edge portion 60 of the top wall 3 and the upper edge portion 58 of the side wall 2 are jointly folded down onto the side wall at reference numeral 55. The fold 55 is substantially at the same level as the opposed edge 61 of the top wall 3 and the upper edge 56 of the opposed side wall 1. By
- 5 arranging the fold 55, the opposed edge 61 of the top wall and the upper edge 56 of the opposed side wall 1 at the same level a bag with good stackability is provided. The lower free edges of the upper folded-down edge portions 58, 60 extend beyond the peelable connection 42 provided between the top wall 3 and the side wall 2 by the sealing zone 41.
- 10 It should furthermore be noted that the hot-melt strip 47' extends onto the folded-down edge portion 60 of the top wall 3. Thus, at the same time as the peelable connection 42 is provided in the sealing zone 41, an additional peelable connection is provided between the folded-down edge portions 58, 60 in a corresponding sealing zone 57.
- 15 It should be noted that also in the modification shown in Fig. 8 the embodiments described with reference to Figs. 1 to 4 of the reclosable connections 12,32 may be used instead of the embodiment 42 described with reference to Fig. 5.

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Claims

Sub 17 1. Stand-up bag of a heat-sealable or weldable plastic film for containing in particular flowable or pourable products and comprising:

- 5 - two opposing side walls (1, 2) sealed together along lateral edges thereof by means of side seams (5, 6);
- an inwardly folded bottom wall (4) extending between the lower portions of the side walls (1, 2) and sealed to the respective side walls (1,2) along transverse bottom seams (7, 8) and along bottom side seams; and
- 10 - an inwardly folded top wall (3) extending between the upper portions of the side walls (1, 2) and connected to the respective side walls (1,2) along transverse top connections (11, 12) and sealed to the respective side walls (1, 2) along top side seams,

characterised in that at least one of the transverse connections between the
 15 top wall (3) and the side walls is a heat-sealed peelable connection (12, 32, 42, 52) provided between an upper edge portion (16, 36) of the top wall (3) and an upper edge portion (15) of the adjacent side wall (2).

2. Stand-up bag according to claim 1, characterised in that the upper edge portions (16, 36; 15) of the top wall (3) and of the side walls (2) extends
 20 beyond the transverse peelable connection (12, 32, 42, 52) to form gripping members.

Sub 17 3. Stand-up bag according to claim 1 or 2, characterised in that the peelable connection (12) comprises a film strip (17) arranged between the upper edge portions (16,15) of the top wall (3) and the side wall (2), said film strip being firmly

(non-peelably) heat-sealed to one of the edge portions, preferably to the edge portion of the top wall (3), the strip (17) having a first surface (18) of a sealing medium corresponding substantially to the sealing medium of the adjacent bag wall (3), and heat-sealed peelably to the second edge portion, preferably the edge portion (15) of the side wall (2), the strip (17) having a second surface (20) of a sealing medium heat-sealing peelably to the sealing medium of the adjacent bag wall.

4. Stand-up bag according to claim 3, and wherein the inner sealing medium of the bag walls is made substantially from polyethylene (PE), characterised in that the first outer sealing medium layer (18) of the film strip (17) comprises a mixture of PE and polybutylene.

Sub a 2 / 5. Stand-up bag according to claim 1 or 2, characterised in that the peelable connection (32) comprises a film strip (37) arranged between the upper edges (16,15) of the top wall (3) and the side wall (2) and having a first and a second outer sealing medium layer (28,29) with which it is firmly (non-peelably) heat-sealed to the respective edge portions (16,15) and further having an intermediate layer (30) peelably connected to at least one of the outer sealing medium layers having a tear resistance weaker than the peel strength between the intermediate layer (30) and the said sealing medium layer.

6. Stand-up bag according to claim 5, characterised in that the intermediate layer (30) is a pressure-sensitive adhesive.

Sub a 3 / 7. Stand-up bag according to claim 1 or 2, characterised in that the peelable connection (42) comprises a peelable strip of the hot-melt type applied to at least one of the two mutually facing surfaces (19,20) of the upper edge portions (16,15) of the top wall (3) and the side wall (2).

8. Stand-up bag according to one or more of the preceding claims,

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characterised in that above the peelable connection (42) the upper edge portion (53) of the top wall is folded down to abut the outer face of the adjacent side wall (2).

9. Stand-up bag according to one or more of the claims 1 to 8,

5 characterised in that above the peelable connection (42) both the upper edge portions (60) of the top wall (3) and the upper edge portions (58) of the adjacent side wall (2) are folded down onto the adjacent side wall (2).

10. Stand-up bag according to claim 1 or 2, characterised in that in the area of the peelable connection (52) the upper edge portion (36) of the side wall or
10 top wall (3) is folded down for abutment inner face to inner face and that the wall (3) with the folded-down edge portion (36) has an outer sealing medium layer heat-sealing peelably to the inner sealing medium layer (20) of the other wall (2).

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Abstract

A stand-up bag of heat-sealable plastic film comprising two opposing side walls (1,2) sealed together along lateral edges thereof by means of side seams (5,6), an inwardly folded bottom wall (4) extending between the lower portions of the side walls (1,2) and sealed to the respective side walls (1,2) along transverse bottom seams (7) and along bottom side seams, and an inwardly folded top wall (3) extending between the upper portions of the side walls (1,2) and connected to the respective side walls along transverse top connections (11,12) and sealed to the respective side walls (1,2) along top side seams. At least one of the transverse connections between the top wall (3) and the side walls is a peelable connection (12) provided between an upper edge portion (16) of the top wall (3) and an upper edge portion (15) of the adjacent side wall (2).

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